characters generally accepted for specific diagnosis in the Diatomaceæ.

THE Romanes Lecture on "The Effect of External Influences upon Development," delivered by Prof. Weismann, at Oxford, last May, and reported in these columns (vol. l. p. 31) has been published in English by the Clarendon Press. The translation has been done by Mr. Gregg Wilson. In the preface, Prof. Weismann adds his tribute to the many that have been paid to the memory of the late Dr. Romanes.

MESSRS. J. AND A. CHURCHILL will shortly publish a new edition of Dr. F. Kohlrausch's indispensable handbook to practical physics—"An Introduction to Physical Measurements." The edition has been translated from the seventh German edition, published in 1892, and it contains nearly four times the number of pages that the first one did in 1869. Mr. T. H. Waller and Mr. H. R. Procter are the translators.

GLACIAL action in Australasia has much attention devoted to it in the *Proceedings* of the Royal Society of Tasmania for 1893. Mr. R. M. Johnston contributes an elaborate review of the evidences of former glaciation in Australasia, with critical observations upon the principal hypotheses which have been advanced to account for glacial epochs generally, and there are several papers on the discovery of glacial action in Tasmania.

IN the current number of *Mind*, Mr. Francis Galton contributes an article on "Discontinuity in Evolution," which should be read by all who are interested in modern biological theory. It owes its origin to the publication of Mr. Bateson's recent work, and contains a summary of the views on discontinuous or "transilent" variation and on "organic stability," which Mr. Galton has published in "Natural Inheritance," in "Finger Prints," and in the preface to a reprint of "Hereditary Genius." The data on which these views are based lie somewhat off the beaten track of biological inquiry, and Mr. Galton's conclusions have not received the consideration due to results based on careful and prolonged observation.

THE Royal Meteorological Institute of the Netherlands has published a new edition of "The Tides on the Dutch Coast," containing, among other useful information, the results of tidal observations made at several stations during recent years. The tables show that on the North Hinder Bank, for instance, the temperature of the air from September to February is lower than that of the sea surface; but from March to August it is higher, and that the prevalence of thunderstorms increases with the latitude. Tide rips are most frequent in the month of April and during the first four days of full and new moon.

THE Meteorological Council have recently issued a second edition of a Barometer Manual for the use of seamen, in which many alterations and improvements have been made. The work contains carefully drawn charts showing the mean atmospheric pressure and prevailing winds for January and July, and also many valuable hints on the management of the barometer. The portions dealing with winds and storms, and especially with practical rules for seamen in tropical cyclones, are of especial value, and this small work of forty pages contains all the necessary information for the safe navigation of a vessel which may be in the vicinity of these storms.

WE have received the *Journal of the Anthropological Institute* for August, containing papers read at meetings of the Institute during the first quarter of this year. Among other papers, we notice one on flint implements of a primitive type from old (pre-glacial) hill-gravels in Berkshire, by Mr. P. A. Shrubsole, and a note on the poisoned arrows of the Akas, by Prof. L. A. Waddell. The Akas are one of the Lohitic tribes of the Asam Valley, occupying independent territory to the north of the Brahmaputra. They poison their arrows for use in warfare, the poison being derived, as has been found in other cases, from the roots of a species of *Aconitum*. A translation of the second part of "Shamanstoo," being Prof. Mikhailovskii's important account of Shamanism in Siberia and European Russia, is contributed by Mr. O. Wardrop.

A THIRD edition, enlarged and partly rewritten, of "Select Methods in Chemical Analysis," by Prof. W. Crookes, F.R.S., has been published by Messrs. Longmans, Green, and Co. During the eight years which elapsed between the publication of the second edition and the preparation of this, various new processes have been introduced, and old ones have either been displaced, or become so well known in ordinary laboratories that their retention in a "select" work, like that of Prof. Crookes', is unnecessary. For it will be remembered that the work is "not intended to provide the student with a complete text-book of analysis, but rather with a laboratory companion, containing information not usually found in ordinary works on analysis." In the present edition, volumetric operations have been almost entirely omitted, and also processes of technical importance. These omissions have made room for the addition of a series of electrical separations, and other processes from Dr. Classen's "Quantitative Chemical Analysis by Electrolysis." As Prof. Crookes only includes in the volume such methods as have been proved in his own laboratory, their practicability is assured. A disadvantage of this eclectic method, however, is that good methods of analysis are passed over because they do not happen to have been personally tested by the author.

THE additions to the Zoological Society's Gardens during the past week include a Black Ape (*Cynopithecus niger*, ♂) from the Celebes, presented by Mr. Gambier Bolton; a Slender Loris (*Loris gracilis*) from Ceylon, presented by Mr. Thos. E. Remington; a Common Chameleon (*Chamæleon vulgaris*) from North Africa, presented by Captain Philip Langdale; four Alpine Newts (*Triton alpestris*), European, presented by Mr. Malcolm O. Smith; four Land Crabs from Jamaica, presented by Mr. Percy Walter Jarvis; a Black-backed Jackal (*Canis mesomelas*) from South Africa, deposited; a Weka Rail (*Ocydromus australis*) from New Zealand, purchased; a Cayenne Lapwing (*Vanellus cayennensis*), bred in the Gardens.

OUR ASTRONOMICAL COLUMN.

RECENT OBSERVATIONS OF MARS.—Mars now rises shortly after nine p.m., and is on the meridian between four and five o'clock in the morning. He will be in opposition on October 20. Two important papers, containing the results of recent observations of the planet, are contributed to the August number of *Astronomy and Astro-Physics*. Mr. Percival Lowell, whose observatory was described in these columns on June 14, began to observe the planet at the end of May, and the observations recorded in his article were made between then and June 24. The clearness of the atmosphere at Flagstaff, Arizona, where the observatory is situated, is responsible for the early date at which it was possible to scrutinise the face of the earth's ruddy brother. And the success with which his features were made out may be judged from the fact that Mr. Lowell recognised a dozen of Schiaparelli's canals two and a half months before the summer solstice of the planet's southern hemisphere. At the beginning of the period of observation, the southern snow-cap was found to have a diameter of about forty-seven degrees; that is, it covered nearly the whole frigid zone. On June 19, the cap measured thirty-nine degrees. Throughout all the period, the outer edge appeared to be perfectly elliptical, indicating that the boundary line of the cap was really a circle. The

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snow was continuously bordered by a dark streak of nearly uniform width. Mr. Lowell thinks that this belt was water at the edge of the melting snow; in fact, a polar sea. His view finds support in the observation that the streak was widest where the dark markings on the planet's face—the markings intrepreted as seas—were greatest in extent. Several brilliant star-like points flashed out upon the snow-cap at different times and disappeared after being conspicuously visible for a few minutes. The imaginative mind may think that these flash lights represent signals from the Martians, but a more probable explanation is that they are produced by snow slopes being illuminated in such a manner that the sunlight after glancing across them is reflected at a particular angle to the Earth. The great rift in the snow-cap was observed and found to be about twelve hundred miles long, and rather more than two hundred miles wide. Mr. Lowell did not see any irregularities upon the terminator of Mars, so he concludes that there are few, if any, great mountains on the planet. The first canal, thought to be Cerberus, was observed on June 7, and two days later it was seen double for an instant. Other canals were glimpsed from time to time, and some were seen well enough to be sketched. Prof. W. H. Pickering has also observed Mars at the Lowell Observatory. He remarks: "What appears to me to be the most important conclusion deducible from our work is that Mars does not always present the same appearance at the corresponding time upon two successive Arean years. This remark does not apply merely to small details, but to large and prominent features. Moreover, this difference does not seem to be due simply to the fact that one season is a few weeks later than the other, but that the phenomena presented upon the two years are really different." Prof. Pickering has noticed slight notches in the terminator, but he thinks these are produced by variations in the inclination of the surface of the planet rather than by differences of level.

THE ROTATION OF THE TERRESTRIAL POLES.—Dr. S. C. Chandler has lately been investigating the question whether either component of the polar rotation deviates from a uniform circular motion (*Astr. Jour.* No. 323, July 27). The discussion furnishes clear proof that the figure described by the pole of rotation and pole of figure approximates to an ellipse with a major axis of about 0″·55 and a minor axis of about 0″·30. Dr. Chandler refers this departure from circular, or rather epicyclical motion, to the annual term alone. A computation based upon this assumption shows that the figure is "a very eccentric ellipse with a major axis of 0″·32, lying in the line 53°–233°, and a minor axis of about 0″·10; the period being manifestly about a year, and the motion being from west to east. The angular velocity seems to stand in some inverse relation to the radius."

SOCIETIES AND ACADEMIES.

Paris.

Academy of Sciences, August 6.—M. Lœwy in the chair.—On the variations of *Spirifer Verneuili*, by M. Gosselet.—New anthropological and palæontological researches in the Dordogne. Abstract of a memoir by M. Émile Rivière. Certain details are given concerning palæolithic remains from the "Grottes des Combarelles," the "Grotte Rey," the "Grotte de Cro Magnon," and the "Grotte de la Fontaine," including bones from a numerous fauna and carved and sculptured fragments. Neolithic remains from Pageyral, Sireuil, and Pagenal will be described in a future communication.—The Secretary announced the deaths of the following correspondents: M. A. Hannover, July 7; M. Rollit, August 2.—On groups of substitutions isomorphous with symmetrical or alternate groups, by M. Maillet.—On the zeros of certain discontinuous functions. Principle of the method for finding the zeros of certain functions, by M. Desaint.—On the equations of dynamics, by M. R. Liouville. A claim for priority in reference to the subject-matter of two notes by M. W. Vladimir de Tannenberg, of dates July 30 and May 25 respectively.—On carbonic hydrate and the composition of hydrates of gases, by M. P. Villard. The author determines the composition of a hydrate of carbon dioxide formed by himself to be $CO_2.6H_2O$, and calls attention to the remarkable resemblance between this substance and the hydrate of nitrogen monoxide $N_2O\ 6H_2O$. They have apparently the same crystalline form, the same heat of formation, and are both optically inactive. The hypothesis is made that hydrates of gases should, in general, have a composition expressed by the formula $M.6H_2O$. This assumption is supported by the formulæ found by the author for the similar compounds of sulphur dioxide and methyl chloride. The hydracids are excepted from the rule. Doubt is thrown upon the formula $Cl_2.8H_2O$ for chlorine hydrate.—Basic salts of calcium, by M. Tassilly. The best method of preparation and thermal data concerning calcium oxybromide and calcium oxyiodide are given. These substances have an exactly similar composition to that of André's oxychloride, $CaCl_2.3CaO.16H_2O$. They have the same heat of solution and a heat of formation increasing with increasing atomic weight of the halogen present.—On the use of selected ferments, by M. Charles Fabre. The following conclusions are given—(1) The selected ferment cannot be employed with *any* must for the production of high-class wines. (2) The must in which the ferment is sown should have been obtained from grapes belonging to or vines long acclimatised in the region from which the selected ferment has been obtained.—Peripheric applications of alkaloids in the treatment of acute maladies with cutaneous determination, by MM. L. Guinard and Gustave Geley. The external application of sparteïne in cases where the skin is the active seat of disease has been found to give remarkable curative results, more particularly in cases of erysipelas.—On coprolitic bacteria of the Permian age, by MM. B. Renault and C. Eg. Bertrand. *Bacillus permiensis*, occurring in coprolites from the Permian at Autun, consists of rectilinear bacillus elements, isolated or in pairs, and having the dimensions 14 to 16μ by 2·5 to $3{\cdot}3\mu$ by $0{\cdot}4\mu$. It sometimes occurs curved or twisted in spirals or chains.—On the nature of the great crevasse caused by the last earthquake at Locrides, by M. Socrate A. Papavasilion.—On the existence of *lentilles recifales* with Ammonites in the *Barrêmien* near Châtillon-en-Diois, by MM. G. Sayn and P. Lory.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

BOOKS.—The Aborigines of Western Australia: A. F. Calvert (Simpkin).—Theoretical Mechanics—Fluids: J. E. Taylor (Longmans).—A Treatise on Astronomical Spectroscopy: Prof. Dr. J. Scheiner, translated, &c., by E. B. Frost (Ginn).—Controversen in der Ethnologie, IV., Fragestellungen der Finalursachen: A. Bastian (Berlin, Weidmann).—Coal Dust an Explosive Agent: D. M. D. Stuart (Spon).—Geological Guide-Book for an Excursion to the Rocky Mountains: S. F. Emmons (K. Paul).—British Rainfall, 1893: G. J. Symons and H. S. Wallis (Stanford).—Systema Naturæ; Regnum Animale, editio decima 1758: C. Linnæi (Leipzig, Engelmann).—Le Centre de l'Afrique, Autour du Tchad: P. Brunache (Paris, Alcan).—Memoirs of the International Congress of Anthropology: edited by C. S. Wake (K. Paul).—The Water Supply of Towns and the Construction of Waterworks: Prof. W. K. Burton (Lockwood).

PAMPHLETS.—Supplement to 41st Report of the Department of Science and Art (Eyre and Spottiswoode).—Representation and Suffrage in Massachusetts, 1620-1691: Dr. G. H. Haynes (Baltimore).

SERIALS.—School Review, June (Hamilton, New York).—Proceedings of the Royal Physical Society, Session 1892-93 (Edinburgh).—American Journal of Science, August (New Haven).—Papers and Proceedings of the Royal Society of Tasmania for 1893 (Hobart).—Zeitschrift für Physikalische Chemie, xiv. Band, 4 Heft (Leipzig, Engelmann).—Engineering Magazine, August (Tucker).—Notes from the Leyden Museum, January to April (Leyden, Brill).—Astronomy and Astro-Physics, August (Wesley).—Journal of the Royal Microscopical Society, August (Williams and Norgate).—Sechzehnter Jahres-Bericht über die Thätigkeit der Deutschen Seewarte für das Jahr 1893, Beiheft i. (Hamburg).

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